

# **Navajo Abandoned Uranium Mine**

## **Site Screen Report**

*This form is for use at the site of abandoned uranium mines (AUM) located on Navajo Nation lands. Applicable sites include all mine and mine features that have or have not undergone reclamation by the Navajo Abandoned Mine Lands Reclamation Program, including features, adits, pits and waste piles. Applicable sites also include all AUM sites listed in the USEPA CERCLIS database, all sites listed in the 2008 AUM GIS Report issued by USACOE and USEPA, all AUM sites on allotment lands associated with the Navajo Nation, and any and all AUM sites not listed in any database located on Navajo lands. Reconnaissance of any sites located on lands adjacent to Navajo lands that may be impacting Navajo lands will need to be coordinated with the authorities appropriate to those lands.*

*The purpose of the form is to ascertain the status and location of the identified AUM site, and record all immediate site information associated with the mine site. Decisions and recommendations on what additional steps are needed will be provided on a separate document.*

### **Cottonwood Butte AUM Site**

#### **Navajo AUM Northern Region**

**Prepared by:**

**Weston Solutions, Inc.**

**Contract: W91238-06-F-0083**

**12767.063.496.1111**

**March 2010**

**Part I Site Identification, Location and Status****Site Names and ID numbers as applicable****Mine ID:** 28**Map ID:** N129**CERCLIS:** NNN000908835**Navajo Abandoned Mine Land Reclamation Program:** NA-0411**Local name / Aliases:** Plot 8; VCA Plot 8; East Reservation Lease Plot 8**Chapter and local area:** Red Valley Chapter**County:** San Juan **State:** New Mexico**Lat/Long:** 36.772056073 N / -109.040215832 W**Nearby road and highway:** Indian Route 63 **Local Post Office:** Beclabito, NM**Surface Land Status: check one or more and provide ownership and contact information below**

**Tribal Trust Land** ☒  
**Private** ☐  
**Bureau of Land Mgmt** ☐  
**State** ☐

**Public lands** ☐  
**Tribal Fee Land** ☐  
**Allotment** ☐  
**Fee land** ☐

**Subsurface Mineral Rights:**

The mineral rights ownership was identified as Indian.

**Claim and operator information:**

The mine site surface land status is classified as Tribal Trust Land. Historical documents showed the operator of the mine as Vanadium Corp. of America in 1949 and 1954, and Alfred Nelson from 1950 to 1951. No other historical ownership / lease information was identified in the EPA/AUM database.

**Number of residential structures within 200 feet of mine:**

None

**Estimated volume of mine waste onsite:**

None

## Part II Summary of radiological readings

### Highest gamma radiation measurement:

78,200 counts per minute (cpm)

### Describe any other radiological measurements:

A total of 4,859 gamma radiation measurements were collected from the mine site, ranging from 5,552 cpm to 78,200 cpm. Measurements in the vicinity of the reclamation cap were found at levels above 65,000 cpm. The measurements are represented in Figures 1 and 2.

### Background Locations

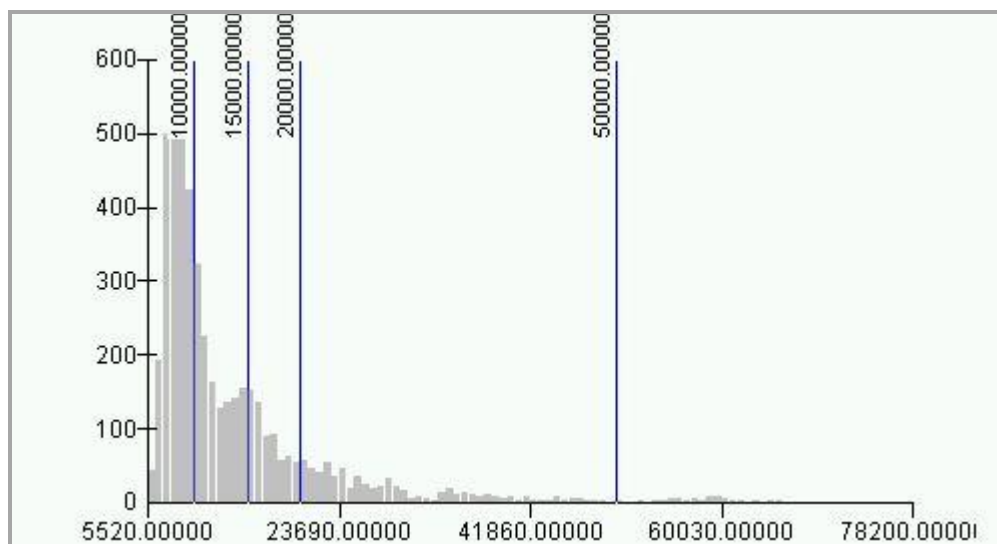
#1 7,546 cpm

#2 7,294 cpm

**Average background = 7,420 cpm**

### Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	4859
Minimum:	5520.00000
Maximum:	78200.00000
Sum:	67177535.00000
Mean:	13825.38279
Median:	10344.00000
Standard Deviation:	9260.93429

### **Part III      Status of Reclamation and Mine Waste**

**The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:**

**NAMLRP Status of the mine site: Reclaimed : Yes      Waste Pile onsite : No**

**NAMLRP Project Number: NA-0411**

**NAMLRP Mine features: 1 Portal, 1 Rim Strip / Pit**

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**The following information was obtained from field observations collected during the 2009 site screening:**

**Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.**

#### **Observed reclamation work and status:**

##### **Adits**

Sealed adit with stacked stone monument

##### **Waste Piles**

None

##### **Pits**

None

##### **Shafts**

None

##### **Other Debris and Mine Features**

Possible reclamation cap, 20' x 60', red clay mixed with waste rock

## Part IV

### Site observations and Environs

**Observed Structures: list number of and describe human habitation status of structures at the following distances from mine:**

**0 to 200 feet:** None

**200 feet to 0.25 mile:** None

**Observed Public or commercial structure: list and describe all schools, clinics, Chapter Houses, places of business and any other structure used by members of the community at the following distances:**

**0 to 200 feet:** None

**200 feet to 0.25 mile:** None

**Levels measured around the perimeter(s) of the identified structure(s):**

None

**Observed water sources: list the number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine:**

**0 to 0.25 miles:** None

**0.25 miles to 4 miles:** Livestock well approximately 0.3 miles east of site

**Sensitive environments: note and describe all sensitive environments located within visible range of the mine site, including: wetlands, endangered species, habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation.**

None observed

**Known Site History: include information from interviews with Chapter officials and residents. Note information on mine ownership, type of mining operation, period of operation, known amount of production, and any other information as provided.**

Cottonwood Butte mine consists of an area of 9,923.02 m<sup>2</sup>. The mine was identified as being operational from 1950 to 1954. Historical documents showed the operator of the mine as Vanadium Corp. of America in 1949 and 1954, and Alfred Nelson from 1950 to 1951. While operational, the mine had a total reported production volume of 250 tons. No other historical information or any additional ownership / lease information was identified in the EPA/AUM database.

## **Part V            Response Action Summary**

**Site Name(s):** Cottonwood Butte    **Chapter:** Red Valley

### **Decision Criteria**

**Is there an unreclaimed waste pile at the site?** No

**At what distance from the waste pile is the nearest residential structure located?** None

**At what distances from the waste pile are there potential drinking water sources?** None

**Is there a reclamation cap or sealed adit in place at the site?** Yes

**Is the cap/seal functionally intact?** Yes

**Is the cap/seal sufficiently degraded to create a concern about releases?** No

**At what distance from the cap/seal is the nearest domestic structure located?** 0.5 mi

**At what distance from the cap/seal is the nearest domestic drinking water source?** 0.3 mi

### **Summary of emergency response factors**

None

### **Summary hazard ranking system factors**

None

### **Summary of reclamation factors**

1 sealed adit; 1 possible reclamation cap

## Part VI      Photos



Photo 1. Livestock well approximately 0.3 miles east of mine site



Photo 2. Livestock well approximately 0.3 miles east of mine site



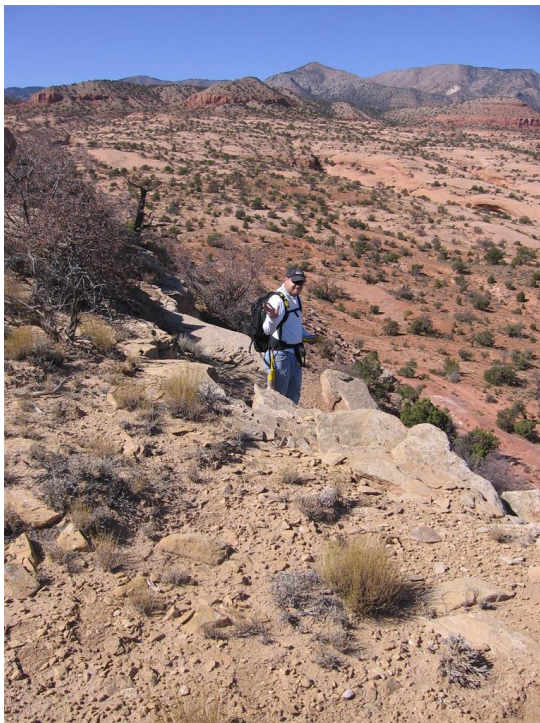


Photo 3. Mine site down slope area



Photo 4. Stacked rock marking adit location





Photo 5. Clay reclamation cap



Photo 6. Housing compound approximately 0.5 miles from site



Photo 7. Housing compound approximately 0.5 miles from site

**Part VII      Contacts Reports and Information**Name: Stanley Edison (928) 871-6861Eugene Esplain (928) 871-7331Title or official role (if any) Navajo EPA Superfund ProgramAddress PO Box 2946, Window Rock, AZ 86515Information provided Lead Regulatory Agency

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Name \_\_\_\_\_

Title or official role (if any) \_\_\_\_\_

Address \_\_\_\_\_

Telephone number \_\_\_\_\_

Information provided \_\_\_\_\_

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Name \_\_\_\_\_

Title or official role (if any) \_\_\_\_\_

Telephone number \_\_\_\_\_

Information provided \_\_\_\_\_

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Name \_\_\_\_\_

Title or official role (if any) \_\_\_\_\_

Telephone number \_\_\_\_\_

Information provided \_\_\_\_\_

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**Figure 1 - Gamma Radiation Measurements, Above Two Times Background  
Cottonwood Butte Mine (28)  
Red Valley Chapter, Navajo Nation, Arizona**



## Legend

### Gamma Radiation Measurements

- < 2X Background
- > 2X Background

Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)

Average background = 7,420 cpm

- Observed Waste Pile
- Observed Adit
- Inaccessible due to steep grades
- General Direction Down-Slope
- Mine Claim Boundaries

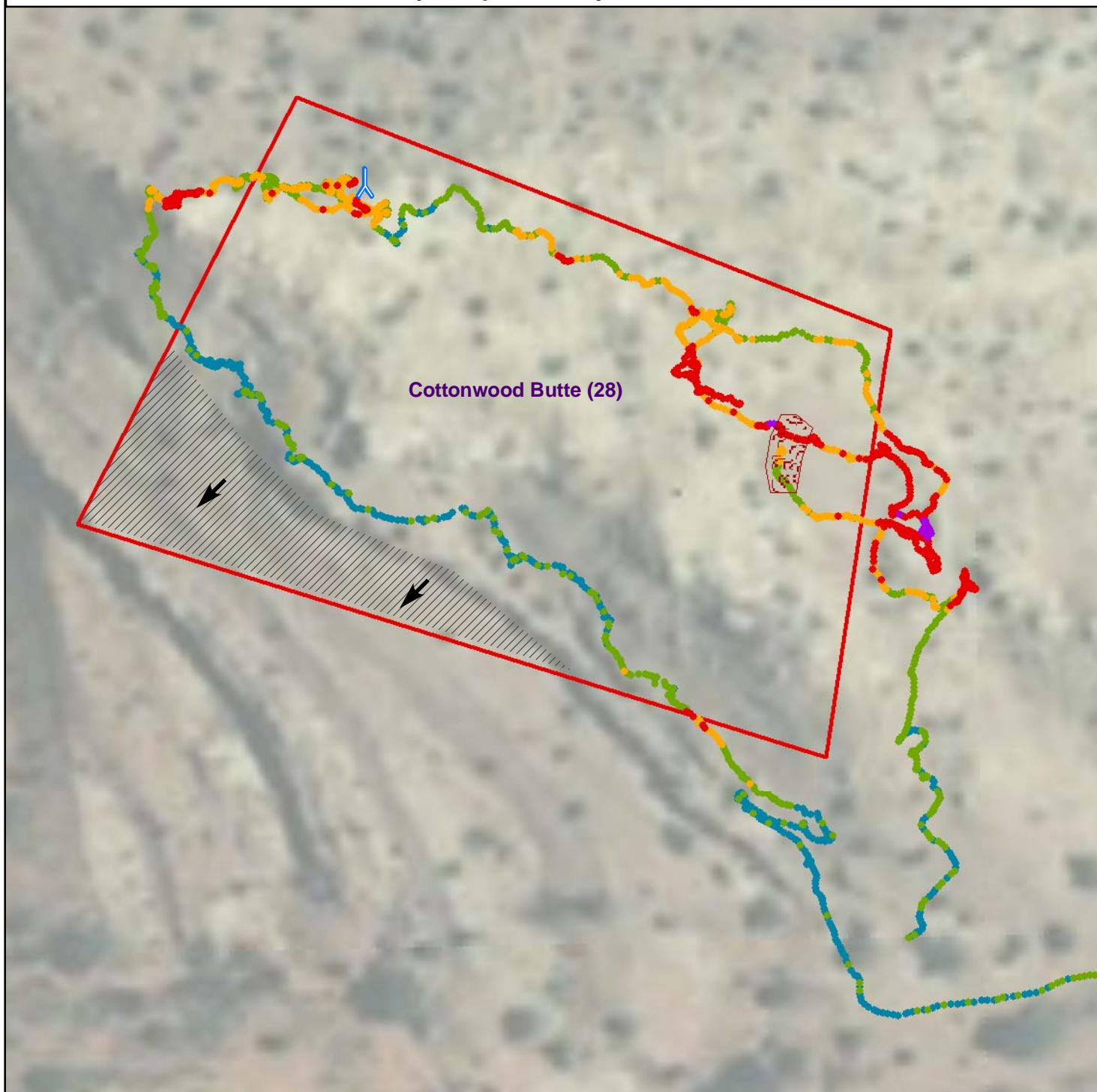


0 100 Feet



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**Figure 2 - Gamma Radiation Measurements  
Cottonwood Butte Mine (28)  
Red Valley Chapter, Navajo Nation, Arizona**



## Legend

### Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000



Observed Waste Pile



Observed Adit



Inaccessible due to steep grades



General Direction Down-Slope



Mine Claim Boundaries

Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)

Average background = 7,420 cpm



0 100 Feet



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